

ABSTRACT

The present invention relates to methods for isolation, purification, expansion, and differentiation of cells having the potential to differentiate into cardiomyocytes. Furthermore, the present invention relates to methods for proliferating cells having the potential to differentiate into cardiomyocytes and for regulating their differentiation into cardiomyocytes using various cytokines and transcription factors. Moreover, the present invention relates to a method for obtaining surface antigens specific for cells having the potential to differentiate into cardiomyocytes, a method for obtaining genes encoding the surface antigens, a method for obtaining antibodies specific for the surface antigens, and a method for obtaining a protein and a gene controlling the proliferation of cells having the potential to differentiation into cardiomyocytes and their differentiation into cardiomyocytes. Also, the present invention relates to therapeutic agents for various heart diseases containing cells having the potential to differentiate into cardiomyocytes. Still furthermore, the present invention relates to a method for differentiating various cells and tissues such as neural cells, hepatocytes, adipocytes, skeletal muscle cells, vascular endothelial

cells and osteoblasts, using cells having the potential to differentiate into cardiomyocytes.